

$\rho_3(2250)$ $I^G(J^{PC}) = 1^+(3^- -)$

OMITTED FROM SUMMARY TABLE

Contains results mostly from formation experiments. For further production experiments see the Further States entry. See also $\rho(2150)$, $f_2(2150)$, $f_4(2300)$, $\rho_5(2350)$.

 $\rho_3(2250)$ MASS **$\bar{p}p \rightarrow \pi\pi$ or $K\bar{K}$**

VALUE (MeV)	DOCUMENT ID	TECN	CHG	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
~ 2232	HASAN	94	RVUE	$\bar{p}p \rightarrow \pi\pi$
~ 2090	¹ OAKDEN	94	RVUE	0.36–1.55 $\bar{p}p \rightarrow \pi\pi$
~ 2250	² MARTIN	80B	RVUE	
~ 2300	² MARTIN	80C	RVUE	
~ 2140	³ CARTER	78B	CNTR 0	0.7–2.4 $\bar{p}p \rightarrow K^- K^+$
~ 2150	⁴ CARTER	77	CNTR 0	0.7–2.4 $\bar{p}p \rightarrow \pi\pi$

¹ See however KLOET 96 who fit $\pi^+\pi^-$ only and find waves only up to $J = 3$ to be important but not significantly resonant.

² $I(J^P) = 1(3^-)$ from simultaneous analysis of $p\bar{p} \rightarrow \pi^-\pi^+$ and $\pi^0\pi^0$.

³ $I = 0, 1$. $J^P = 3^-$ from Barrelet-zero analysis.

⁴ $I(J^P) = 1(3^-)$ from amplitude analysis.

NODE=M044M1

NODE=M044M1

NODE=M044205

NODE=M044M1

NODE=M044M1

NODE=M044M1;LINKAGE=CC

NODE=M044M1;LINKAGE=P

NODE=M044M1;LINKAGE=K

NODE=M044M1;LINKAGE=J

NODE=M044M2

NODE=M044M2

S-CHANNEL $\bar{N}N$

VALUE (MeV)	DOCUMENT ID	TECN	CHG	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
2260±20	⁵ ANISOVICH	02	SPEC	0.6–1.9 $p\bar{p} \rightarrow \omega\pi^0, \omega\eta\pi^0, \pi^+\pi^-$
~ 2190	⁶ CUTTS	78B	CNTR	0.97–3 $\bar{p}p \rightarrow \bar{N}N$
2155±15	^{6,7} COUPLAND	77	CNTR 0	0.7–2.4 $\bar{p}p \rightarrow \bar{p}p$
2193± 2	^{6,8} ALSPECTOR	73	CNTR	$\bar{p}p$ S channel
2190±10	⁹ ABRAMS	70	CNTR	S channel $\bar{p}N$

⁵ From the combined analysis of ANISOVICH 00J, ANISOVICH 01D, ANISOVICH 01E, and ANISOVICH 02.

⁶ Isospins 0 and 1 not separated.

⁷ From a fit to the total elastic cross section.

⁸ Referred to as T or T' region by ALSPECTOR 73.

⁹ Seen as bump in $I = 1$ state. See also COOPER 68. PEASLEE 75 confirm $\bar{p}p$ results of ABRAMS 70, no narrow structure.

NODE=M044M;LINKAGE=AY

NODE=M044M2;LINKAGE=I

NODE=M044M2;LINKAGE=E

NODE=M044M2;LINKAGE=M

NODE=M044M2;LINKAGE=B

 $\pi^- p \rightarrow \eta\pi\pi$

VALUE (MeV)	DOCUMENT ID	TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •			
2290±20±30	AMELIN	00 VES	37 $\pi^- p \rightarrow \eta\pi^+\pi^- n$

NODE=M044M3

NODE=M044M3

 $\rho_3(2250)$ WIDTH **$\bar{p}p \rightarrow \pi\pi$ or $K\bar{K}$**

VALUE (MeV)	DOCUMENT ID	TECN	CHG	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
~ 220	HASAN	94	RVUE	$\bar{p}p \rightarrow \pi\pi$
~ 60	¹⁰ OAKDEN	94	RVUE	0.36–1.55 $\bar{p}p \rightarrow \pi\pi$
~ 250	¹¹ MARTIN	80B	RVUE	
~ 200	¹¹ MARTIN	80C	RVUE	
~ 150	¹² CARTER	78B	CNTR 0	0.7–2.4 $\bar{p}p \rightarrow K^- K^+$
~ 200	¹³ CARTER	77	CNTR 0	0.7–2.4 $\bar{p}p \rightarrow \pi\pi$

¹⁰ See however KLOET 96 who fit $\pi^+\pi^-$ only and find waves only up to $J = 3$ to be important but not significantly resonant.

¹¹ $I(J^P) = 1(3^-)$ from simultaneous analysis of $p\bar{p} \rightarrow \pi^-\pi^+$ and $\pi^0\pi^0$.

¹² $I = 0, 1$. $J^P = 3^-$ from Barrelet-zero analysis.

¹³ $I(J^P) = 1(3^-)$ from amplitude analysis.

NODE=M044210

NODE=M044W1

NODE=M044W1

NODE=M044W1;LINKAGE=CC

NODE=M044W1;LINKAGE=P

NODE=M044W1;LINKAGE=K

NODE=M044W1;LINKAGE=J

S-CHANNEL $\bar{N}N$

<u>VALUE (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>CHG</u>	<u>COMMENT</u>
• • • We do not use the following data for averages, fits, limits, etc. • • •				
160±25	¹⁴ ANISOVICH	02	SPEC	0.6–1.9 $p\bar{p} \rightarrow \omega\pi^0, \omega\eta\pi^0,$ $\pi^+\pi^-$
135±75	^{15,16} COUPLAND	77	CNTR 0	0.7–2.4 $\bar{p}p \rightarrow \bar{p}p$
98± 8 ~ 85	¹⁶ ALSPECTOR ¹⁷ ABRAMS	73 70	CNTR	$\bar{p}p$ S channel S channel $\bar{p}N$
14 From the combined analysis of ANISOVICH 00J, ANISOVICH 01D, ANISOVICH 01E, and ANISOVICH 02.				
15 From a fit to the total elastic cross section.				
16 Isospins 0 and 1 not separated.				
17 Seen as bump in $I = 1$ state. See also COOPER 68. PEASLEE 75 confirm $\bar{p}p$ results of ABRAMS 70, no narrow structure.				

NODE=M044W2

NODE=M044W2

 $\pi^- p \rightarrow \eta\pi\pi$

<u>VALUE (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
• • • We do not use the following data for averages, fits, limits, etc. • • •			
230±50±80	AMELIN	00 VES	37 $\pi^- p \rightarrow \eta\pi^+\pi^- n$

NODE=M044W3

NODE=M044W3

 $\rho_3(2250)$ REFERENCES

ANISOVICH 02	PL B542 8	A.V. Anisovich <i>et al.</i>
ANISOVICH 01D	PL B508 6	A.V. Anisovich <i>et al.</i>
ANISOVICH 01E	PL B513 281	A.V. Anisovich <i>et al.</i>
AMELIN 00	NP A668 83	D. Amelin <i>et al.</i>
ANISOVICH 00J	PL B491 47	A.V. Anisovich <i>et al.</i>
KLOET 96	PR D53 6120	W.M. Kloet, F. Myhrer
HASAN 94	PL B334 215	A. Hasan, D.V. Bugg
OAKDEN 94	NP A574 731	M.N. Oakden, M.R. Pennington
MARTIN 80B	NP B176 355	B.R. Martin, D. Morgan
MARTIN 80C	NP B169 216	A.D. Martin, M.R. Pennington
CARTER 78B	NP B141 467	A.A. Carter
CUTTS 78B	PR D17 16	D. Cutts <i>et al.</i>
CARTER 77	PL 67B 117	A.A. Carter <i>et al.</i>
COUPLAND 77	PL 71B 460	M. Coupland <i>et al.</i>
PEASLEE 75	PL 57B 189	D.C. Peaslee <i>et al.</i>
ALSPECTOR 73	PRL 30 511	J. Alspector <i>et al.</i>
ABRAMS 70	PR D1 1917	R.J. Abrams <i>et al.</i>
COOPER 68	PRL 20 1059	W.A. Cooper <i>et al.</i>

(VES Collab.)
(RUTG, NORD)
(LOQM)
(DURH)
(LOUC, RHEL) JP
(DURH) JP
(LOQM)
(STON, WISC)
(LOQM, RHEL) JP
(LOQM, RHEL)
(CANB, BARI, BROW+)
(RUTG, UPNJ)
(BNL)
(ANL)

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